The Caspian tern:

a natural history

by Steve Penland

Although the Caspian tern had been reported in Washington from time to time, it was not until 1958 that a small colony of the birds was found nesting here, on Goose Island in Gray's Harbor. The island provided an ideal nesting habitat of sandy beach with scattered driftwood. This population grew dramatically, and about 1,000 pairs were counted there in 1973.

Then winter storms struck, and waves wiped the beach clean of much of the driftwood that made up an important part of the Caspian tern's nesting requirements. Most of the terns moved to Whitcomb Island near Westport, where observers counted 1,200 breeding pairs in 1976. These birds represent more than half of the state's Caspian tern population. Six hundred pairs nest on Sand Island in Grays Harbor; a few pairs nest at Potholes Reservoir and on Cabin Island in eastern Washington, and several hundred on islands in Willapa Bay.

The clash between economic progress and wildlife habitat is brought into sharp focus by Steve Penland's work on the Caspian tern in Washington. Penland, a University of Puget Sound graduate student, has just completed a two-year study on the species for his master of science thesis. He did his research under Dr. Gordon Alcorn, professor emeritus at UPS, who is well-known among Northwest ornithologists. Penland's work was supported by money from the game department's non-game program.

Washington is the northern limit of the Caspian terns' range in the Pacific Northwest. They start arriving from their wintering area in southern California around the first week in April. Most have arrived by the first week in May when pairs begin to prepare for nesting. By the third week in May, most of the eggs have been laid. At this time, researchers can easily take a census by counting the number of nests and multiplying this count by two. Our 1976 count showed about 2,640 birds on Whitcomb.

Most nests hold three eggs, but sometimes four or five eggs are seen in one nest covered by one brooding adult. By color-marking the eggs as they are laid, we found that one or two eggs are often stolen from adjacent nests. So, when more than three eggs were found in the same nest, they were probably not laid by one female. Egg stealing is rare among birds in general, but certainly not with the Caspian tern.

Researchers have been banding the Grays Harbor terns since 1972. They must watch the nests closely and band the chicks within a few days after hatching. Chicks large enough to run about the colony may flee at the approach of humans. If a chick strays out of its territory, it may be killed by a neighboring adult. Banding chicks when they are only two or three days old reduces human disturbance, and banding mortality can be kept low.

Biologists have banded 1,338 tern chicks since 1972. Of these only three bands have been returned. One was found dead on a Kalaloch beach scarcely 25 miles north of where the bird was hatched. A second band was taken from the leg of a tern by the mouth of the Yakima River near Richland; this bird had struck a power line and broken a wing. It was banded June 11, 1973, and was picked up August 8—quite a flight for a bird barely two months old.

A third band was returned from a tern that got tangled in fishing gear near Huatampito Sinlolo, Mexico. This bird was banded June 9, 1975, and it was removed from the fishing gear about four months later, on October 17.

Caspian terns eat small fish. They prefer small shiner perch, sculpin, anchovies and smelt, which they capture by diving into schools of fish in shallow water. Unlike gulls, they do not eat carrion or garbage.

The Caspian tern's southern migration begins in August and continues through September. At the end of August, 50 per cent of the summer population is still here; by late September or early October, only a few birds remain. By October 15 all are gone.

The Caspian tern is not considered rare or endangered world-wide, but it can legitimately be classified as rare here in Washington. If a catastrophe struck the Grays Harbor colony, a major part of the state's population would be wiped out. A certain amount of mortality occurs naturally among

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eggs and chicks. We saw this during incubation when we found buried eggs and dead chicks scattered about the colony away from the nests.

Humans can cause unnaturally high mortality rates. Some people have deliberately smashed eggs against driftwood logs. Others have let their dogs run loose through the colonies, taking a fearful toll among the defenseless chicks. Even well-meaning people who, through ignorance, walk through the colony when it should remain unmolested may cause chicks to flee into neighboring birds' territories where they may be killed or injured.

Encroaching colonies of nesting gulls may also threaten the tern's welfare. When the pugnacious adult terns keep the gulls from entering the colony, the gulls do little damage. But if the terns let their guard down, or if they are driven away by humans, the gulls quickly take advantage of the disturbance to dart into the colony and eat the eggs. Gulls will also peck the tern chicks, but they do not seem to relish eating them. Few eggs and chicks are destroyed by gulls now, but if this marauding bird increases its population on the Grays Harbor and Willapa islands, they could become a much greater threat.

So far, habitat pollution by pesticides and heavy metals does not seem to have significantly affected the Caspian tern. This kind of pollution often causes other bird species to lay eggs with very thin shells that may fail to hatch. Measurements of eggshell thickness for Caspian terns in Grays Harbor were compared to measurements for museum eggshells; these seem to show that shells are no thinner now than they were 30 or more years ago.

Whitcomb Island, which has the state's largest concentration of Caspian terns, has been mentioned as a possible site for deposition of dredgings by the U.S. Army Corps of Engineers. This could have serious consequences for the terns there. The driftwood habitat would be obliterated, more predatory gulls would be attracted by the increased vegetation and more people might use the island for recreation.

Considering the importance of this single island to the state's Caspian tern resource, we have recommended that dredgings be deposited only if erosion of the island by winter storms continues to be a problem over the next several

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years. Even then, this must be done in a manner which would create new habitat for the terns.

The Washington State Department of Game is developing management policies and recommendations for the state's Caspian terns. Our research has enabled field biologists and administrators to identify hazards facing these birds and to suggest ways to minimize these hazards. By documenting the breeding cycle of the tern, we have been able to identify periods when the colony is most susceptible to human disturbances and should be left unmolested. The study has also provided baseline data so future changes in mortality rates, gull populations or the physical aspects of the island can be evaluated properly.

This natural history research should help make it possible for future generations of Washingtonians to discover and appreciate the natural diversity of our state.